

18. (Twice Amended) A method for screening for agents that inhibit the activity of a Kir3.0 channel, the method comprising:

- a) forming a functional Kir3.0 channel from at least two different inward rectifier, G-protein activated, mammalian, potassium Kir3.0 polypeptides;
- b) combining the candidate agent with said Kir3.0 channel under conditions that permit inward K⁺ current;
- c) determining the induced current, wherein a reduction in said induced current in the presence of said agent as compared to a control is indicative that said agent inhibits the activity of a Kir3.0 channel.

19. The method of Claim 18, wherein said Kir3.0 polypeptides are selected from the group consisting of polypeptides having at least about 50% amino acid sequence identity with Kir3.1, Kir3.2, Kir3.3 or Kir3.4.

20. The method of Claim 18, wherein said Kir3.0 polypeptides are selected from the group consisting of polypeptides encoded by nucleic acids that hybridize under low stringency conditions with a complement of a nucleic acid which encodes Kir3.1, Kir3.2, Kir3.3 or Kir3.4.

21. A method for screening for agents that inhibit the activity of a Kir3.0 channel, the method comprising:

- a) providing a functional Kir3.0 channel formed by introducing into an expression host cell a nucleic acid encoding a first mammalian Kir3.0 polypeptide and a nucleic acid encoding a second mammalian Kir3.0 polypeptide under conditions that permit expression of said nucleic acid, wherein said first and second mammalian Kir3.0 polypeptides are different

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from each other, wherein said mammalian Kir3.0 polypeptides assemble to form a functional Kir3.0 in said expression host cell;

b) combining a candidate agent with a functional Kir3.0 channel under conditions that permit inward K⁺ current;

c) determining the induced current, wherein a decrease in said induced current in the presence of said agent as compared to a control is indicative that said agent inhibits the activity of a Kir3.0 channel.

22. The method of Claim 21, wherein said nucleic acid encoding said mammalian Kir3.0 polypeptides are selected from the group consisting of nucleic acids that hybridize under low stringency conditions with a complement of a nucleic acid which encodes Kir3.1, Kir3.2, Kir3.3 or Kir3.4.

23. A screening assay for identifying materials which inhibit the activity of a Kir3.0 channel, comprising the steps of:

(a) introducing nucleic acid encoding a Kir3.0 channel formed from at least two different inward rectifier, G-protein activated, mammalian, potassium Kir3.0 polypeptides into an expression system and causing the expression system to express said nucleic acid encoding a Kir3.0 channel;

(b) contacting the Kir3.0 channel with one or more candidate channel-inhibiting materials;

(c) selecting candidate material(s) which inhibit said activity relative to a control performed in their absence.

24. The method of Claim 23, wherein said nucleic acid encoding a Kir3.0 channel consists essentially of nucleic acids that hybridize under low stringency conditions with a complement of a nucleic acid which encodes Kir3.1, Kir3.2, Kir3.3 or Kir3.4.